

10-1-2021

Part - A

1(A) Temperature Inversion: - It is a deviation from the normal lapse rate i.e. the temperature begins to increase with increase in height instead of decreasing.

1(B) Mixed farming: - It is a type of farming in which the livestock are reared along with the crops.

1(C) Relief and rehabilitation: - One of the most important post-disaster management practice.

1(D) Relative humidity: - It is defined as the ratio of amount of water vapour present in the air to that of the water vapour in saturated air. (ϕ)

1(E) Jet Streams: - 1) They blow at an altitude of 9-13 kms.
2) They blow with the speed of about 250 km/hr.

1(F) Gully Erosion: - 1) Found where there is lack of vegetation.
2) Water is the main agent of erosion.

1(G) Atoll → 1) They are horseshoe shaped coral reefs islands group.

2(11) Albedo :- The amount of the incident solar radiation that is being reflected by the earth's surface is called Albedo.

2(12) Jandhi Sagar Dam :- It is situated in Mandla district and here is generated hydroelectricity. Situated on Chambal river.

2(13) Solar Constant :- It is the rate at which the solar energy reaches the earth and it is taken as 1.366 kW/m^2 .

2(14) Block Mountains :-
• Are formed due to the upliftment or rifting of the earth's crust.
• Examples are Vindhyas and Satpuras.

2(15) Tethys geosyncline :-
• It is a sea that used to exist between the Eurasian and the Gondwana plates, before the formation of Himalayas.

2(16) Inter-Tropical Convergence Zone is situated at equator. It is the zone where the north-east and south-east trade winds converge.

1(10) Cropping Intensity :- It is the ratio of the net area sown to the total cropped area.

1 (1) Estuary → Narmada, Tapi

2 (c) <u>Spring Tides</u>	<u>Neap Tides</u>
a) Occurs when the Sun, Moon and Earth are in a straight line.	b) Occurs when the Sun and Moon are situated at right angles to each other.
b) The tides are generally of more height than the normal tides.	b) The tides are generally of less height than the normal tide.

2 (d) Landforms of Volcanoes

a) Lava plateaus :- The fluidic basic lavas flow at large distances and the cooling of the lava results in the formation of ~~the~~ lava plateaus. E.g. → Deccan plateau of India, Antaim plateau of Iceland.

b) Caldera :- These are the depressions formed in the extinct volcanoes which gets filled with water during rainfall.

E.g. → Lake Toba in Sumatra.

c) Dykes and sills :- Dykes are formed due to the vertical solidification of the upward moving magma while the sills are formed due to the horizontal solidification of magma.

d) Phacoliths → These are horse-shaped volcanic landforms.

2 (h) → Major problems of Indian Agriculture

- Rapid loss in the fertility of Indian soils due to excessive irrigation and use of chemical fertilisers.
- Unavailability of water due to lack of irrigation facilities.
- A large of farmers are marginal.
- Indebtness of farmers.
- Increasing NPA in agriculture sector
- Low capital investment in agriculture
- Low intensity of organic farming
- Destruction of crops due to floods, draughts and hailstorms.

2 (A) → Coal Reserves In India

- It is mainly mined in the Chhotanagpur plateau of India.
- Jharkhand has the largest reserves of coal in the country.

→ In the north-eastern India, Pot-hole mining is mainly practised especially in the state of Meghalaya.

→ In South India, Neyveli coal field is known for its lignite reserves.

→ In Jammu & Kashmir, high-grade anthracite coal is mined from the Kargil region.

→ In the state of Madhya Pradesh, the important coal fields are Sohagpur, Jhilmil, Singrauli etc.

→ In India, mainly bituminous type of coal is found.

2(B)

→ Petroleum Reserves In India

→ It is mainly found as crude oil in the sedimentary rocks.

→ In India, there are offshore as well as on-shore ~~coal~~^{oil} fields.

→ The prominent off-shore ~~pet.~~ oil fields are Bombay High and ~~the~~ Krishna-Godavari Basin.

→ Recent discoveries of oil reserves

are being made in the on-shore areas like Barmer and Jaisalmer of Rajasthan, Digboi oil field in Assam and Ankaleshwar oil field in Gujarat.

→ However, the major portion of the oil reserves are ~~found~~ in the Bombay High region.

2 (c) Food processing sector

- It is an agricultural based industry.
- In it, the main objective is to increase the value of the farm agricultural products through their processing and packaging.
- Recently, we have noticed a 'boom' in our agricultural sector mainly due to the efforts of the government.

→ Relevance

- Helps farmers to increase their produce overseas.
- Increases the share of agriculture sector in the GDP of the country.
- Helps farmers to increase their income
- Provides employment to the people
- Helps in increasing the exports.

2(K)

Micro-irrigation facilities in agriculture

- The term 'micro-irrigation' has earned relevance in the modern times due to the scarcity of water and problems of soil salinisation.
- Sprinkler-irrigation is one of the most important method of micro-irrigation. In this technique, the triclors are attached to the water pipes so as to provide spray water in the fields.
- In this way, the wastage of water can be checked and at the same time, the problem of soil erosion and soil salinisation can be solved.

2(L)

Great Dividing Range

- This is situated in the continent of Australia.
- It has been named so because it functions as a giant-watershed to a number of rivers in Australia.
- It is situated in an arc form on the east coast of Australia.

→ As it is a giant watershed, hence, some of the rivers flow on its eastern slopes while the rivers like Darling, Murray flows on its western slope.

2 (g) → Internal structure of the earth

→ Crust → It is the uppermost part.

- In continents the thickness of the crust is about 33 kms while in case of oceans it is only 3-4 kms.
- It is composed of Silicon and Aluminium.

→ Mantle → It is mainly situated below the crust and it is in the semi-solid state.

- It is mainly composed of silicon and magnesium.
- Crust and upper mantle together constitutes the lithosphere.

→ Core → ~~It is the solid part~~ It mainly consists of Nickel and Iron.

- It is mainly in the solid state.
- The relative density of this part is 13.6.
- From here, originates the earth's magnetic field.

2(E) → Steps taken for soil conservation in India :-

→ Mitti Bachao Andolan :- Started by the Govt. of Madhya Pradesh from the district Hoshangabad in the year 2015.

→ Jal Jeevan Haryali Mission :- It is one of the flagship schemes of the Bihar government which aims at restoring the green cover, preserving the soil as well as the water resources.

→ Integrated Watershed Development scheme has been initiated at several places especially at the catchment areas of rivers. This helps in increasing the recharge of groundwater and ~~is~~ surface water, as well as increasing the focus on soil conservation.

3 (B)

Ship Building Industry in India

• Shipping Industry has a great significance for the country as about 90% of the India's overseas trade is being carried out through ships only.

- The first shipbuilding industry in the country was set up at Vishakhapatnam in 1941. Its name was Hindustan Shipyard Limited.
- Cochin Shipyard Limited is the only ~~shipping~~ shipyard of the country that has the capacity to produce 1,00,000 and 1,25,000 DWT ships.
- Garden Reach Shipbuilding Yard is situated at Kolkata and it is engaged in the building of warships for Indian Navy and Indian Coast Guard.
- Mormugao Docks Limited is situated in Goa and is also an important shipyard.
- Mazgaon Docks Limited is situated in Mumbai and is an important Public Sector undertaking.
- For coordinating the activities of shipbuilding in the country, the ~~the~~ Shipping Corporation of India has been established at Mumbai.

3(B)

Theory of plate tectonics

- This theory was given in the year 1967 by Mackenzie and Hilt.
- By this theory, it was stated that it were the plates ~~and not~~ that were in motion.

throughout the geological history of the earth. This theory is ~~center~~ has disappeared the Wegener's view that the continents were in constant motion throughout the geological past.

- This theory states that the continents and oceans are the constituents of ~~different~~ plates and the plates were in motion in reality.

- This is also true for the Indian plate which started its northward journey about 200 million years ago and gets its present form 10 million years ago.

Types of Boundaries Formed :-

1) Transform Boundary :- When two plates slide past ~~each~~ each other along their lengths, then such a boundary is called transform boundary.

2) Divergent Boundary :- These are formed when the boundaries move away from each other. This results in the upwelling of lava and formation of new crust. Mid-Atlantic Ridge in the Atlantic Ocean is the example of Divergent Boundary.

3) Destructive Boundary :- When one of the plates slides over the other one, it results in the formation of ~~divergent boundary~~ destructive boundary. Earthquakes are common phenomena here. E.g. → Indian and Eurasian plate.

3(E)

Dryland Farming

- It is a technique of farming which is generally used in the areas receiving less than 50 cm of annual rainfall.
- As the water is scarce, hence, the moisture retention in the land is of primary concern for the farmers.
- To prevent the loss of moisture, each plant is ~~planted~~ planted at some distance from the other.
- In the dryland farming, mainly the drought-resistant crops are cultivated like maize, jowar, bajra, coriander etc.

Areas of Dryland Farming :-

In India :- In India, it is practised in the arid and semi-arid regions. ~~like Haryana R~~

It is mainly practised in Rajasthan, Maharashtra, Karnataka, Bundelkhand plateau, Gujarat.

In World: - • In Europe, it is mainly practised in Spain and Italy.

• In USA, the California region is known for dryland farming.

Problems in Dryland Farming

- Moisture retention in the soil is the prime concern.
- Low availability of water.
- Crops must be prevented from the attacks of weeds.
- Limited tilling of land is allowed in order to prevent the escape of soil moisture.
- Nutrient deficiency in the soils.

Techniques for development of Dryland farming:

- use of drip irrigation in arid regions.
- Development of draught resistant varieties of crops.

Part - B

1(A) Cultivated land: - It is the type of land which is readily used for growing of crops.

1(B) Loo are hot winds, that blow in summer season in ~~the~~ North India.

1(C) Caldera is a depression ~~fill~~ filled with water and it takes the form of lake. It is a depression formed due to the ~~water~~ subsiding of the volcanic cone.

1(D) Coral Bleaching: - . occurs due to the global warming.

- Algae zooxanthellae present in the corals die.
- This results in the formation of reefs.

1(E) Rift valley: - . It is formed between two parts of block mountains.

- It is the subsided part of the earth's crust.
- E.g. → The Great African Rift Valley.

1(F) Pacific Ring of fire is a chain of volcanoes found in the boundaries of Pacific Ocean around Japan, Philippines, Hawaii, Samoa etc.

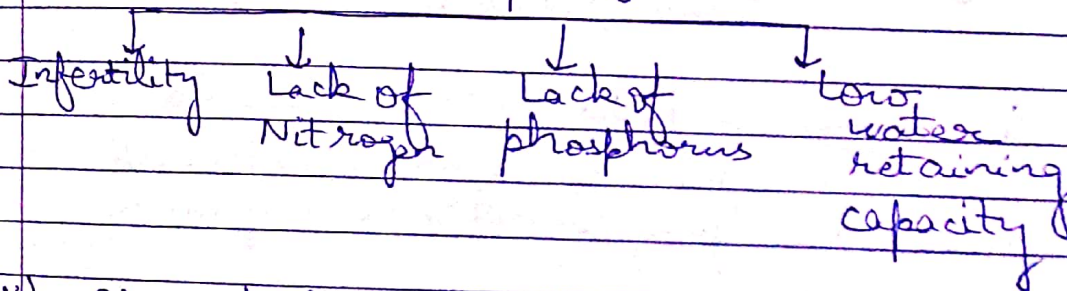
1(G) Moraine : - 1) It is basically the debris brought up by the glacier.

2) Types of moraines are ground and lateral moraine.

1(H) Inselberg :- 1) It means Island-Mountain
2) It is a hard rock and the part of the former plateau that remains after the erosion by wind, in arid regions.

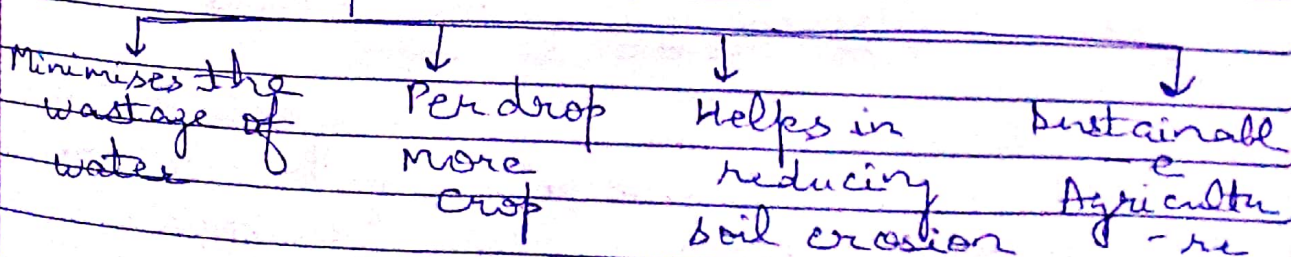
1(I) Sustainable Development focusses on the utilisation of resources for the present development without compromising the needs of future generations to use these resources.

1(J) Problems of soil



1(K) Chernobyl Nuclear Disaster is a ~~not~~ nuclear disaster which occurred in the year 1986 in Ukraine.

1(L) Efficient Irrigation System



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- 1 (M) Death Valley → 1) It is situated in the USA.
 2) It is one of the driest places on the earth.
 3) Known for its great canyons.

- 1 (O) Horse Latitudes → 1) Situated at 30° - 35° in both the hemispheres.
 2) These are zones of high pressure.

- 1 (N) ~~(O)~~ Oceanic Deposits → 1) Found in the Abyssal plains of the oceans.

- 2) Types :- terrigenous, organic, pelagic, cosmic, volcanic

- 1 (P) Sir Creek :- 1) Disputed boundary between India and Pakistan. 21
 2) In the Gulf of Katchh region of Gujarat.
 3) Pakistan claims the entire Sir Creek region.

~~(O)~~
 2 (A) Different Types of Volcanic Cones

A volcanic cone is a conical hill that is made of the piling of the materials emitted during volcanic eruption.

Types :- 1) Cinder Cone :- It is a small hill formed around the ~~gr~~ Crater and comprises of the materials emitted out during volcanic eruption. It is a very small hill and is ~~made~~ ^{made} up of weak fragments of volcanic debris.

2) Composite Cone :- It is also called as the Stratovolcano because it is comprised of layers of volcanic materials. Each layer is added after the freshly erupted materials of the volcanic eruption.

3) Spatter Cones → They are of very small size and formed due to minor volcanic activity.

2(B)

Atmospheric layers

a) Troposphere :- It is the lowermost layer of atmosphere, just above the surface of the earth. It extends upto 18 km at equator and 8 km at poles. Here, the temperature decreases with increase in height ~~(at 165 m/°)~~ at the rate of $1^\circ\text{C}/165\text{m}$. This is known as normal lapse rate.

b) Stratosphere :- This layer contains O₃ layer, which is ~~and~~ present in its lower part. It extends upto 50 km and here the temperature starts increasing with increase in height.

c) Mesosphere :- It extends from 50-80 km. The temperature starts decreasing once again and may reach upto -90°C .

d) Thermosphere :- Extends upto 1100 km and here the temperature reaches upto 1200°C . But in spite of it, no appreciable heat is felt here.

2(A)

Jute Industry in India

→ The first jute factory was opened in India in 1854 at Rishra in West Bengal.

→ In India, the main jute producing states are West Bengal, Bihar and Uttar Pradesh.

→ The main use of jute is in making of ropes and ~~the~~ gunny bags for the packaging industry.

→ However, due to increase in the use of plastic in the packaging industry, the jute industry has received a great setback.

→ Majority of the jute mills are concentrated in the state of West Bengal and a large numbers of which are

→ closed row. In East U.P., there is a jute mill at Sahjanwara in Jorahpur.

2 (H) → Main Causes of Migration of people from village to cities :-

- In search of better employment opportunities
- In search of better educational facilities.
- Getting better health facilities from the developed health infrastructure in villages cities.
- To avoid the caste rigidities and various other ills prevalent in the rural areas
- To get access to the better means of transportation.
- To get access to the better means of communication.
- For having access to the better residential facilities.

2 (I) Indian Monsoon

The ~~occurrence~~ occurrence of the monsoon in Indian ~~subcontinent~~ subcontinent is a ~~typical~~ typical phenomenon and it comprises of the following steps :-

• As the summer season begins in India, due to the intense heating of the land by the Sun, there develops a low pressure area ~~of~~ over the Indian mainland.

- This low pressure area further intensifies in the months of June & July, and this results in the shifting of the Inter-Tropical Convergence Zone from the Equator to the Gangetic plains.

- This leads to the change of the direction of south-east trade winds to south-west. In their course they pick up the moisture from the Arabian Sea and there occurs a burst of monsoon on June 1 on the coast of Kerala.

2(J)

→ Problems of flood in India

→ Every year in our country flood phenomena occur in different parts of country.

→ In India, the river basins of Ganga and its tributaries are the main flood prone regions of India.

→ In the recent times, there has been increase in the frequency of urban floods in cities like Mumbai, Hyderabad, Chennai, Delhi etc.

→ Roughly, about 40% of the total

geographical area is prone to floods.

→ Strategies to counter floods

- Making artificial embankments on the banks of rivers, which frequently brought floods.
- Flood-plain zoning of the flood-prone ~~of~~ region.
- Installing a flood warning system

2(L)

→ Aravalli Mountain Ranges

- These mountain ranges lie in the states of Gujarat, Rajasthan, Madhya Pradesh and Delhi.
- In the formation of Thar desert, Aravallis had played an important role because of the fact that the Thar region of Rajasthan is on the leeward side of Aravallis.
- The highest peak of Aravallis is the Gwarsikhar peak.
- In North, it terminates at the Raisina Hills in the ~~Raj~~ U.T. of Delhi.
- These mountain ranges are a vast storehouse of non-metallic as well as metallic minerals.

→ like Tin, Silver, Zinc ~~etc~~ Copper etc

2(D) → Effects of anthropogenic activities on environment :-

→ Loss of biodiversity.

→ Extinction of many species of plants and animals.

→ Rapid loss in the forest cover.

→ Increase in pollution.

→ Deterioration of the air quality of the cities of North India.

→ Desertification.

→ Increase in the frequency of floods.

→ Shrinking of water bodies.

→ Melting of glaciers.

→ Increase in global temperature due to increase in concentration of greenhouse gases in atmosphere.

2(E) → Particularly Vulnerable Tribal groups

→ The tribal population in our country according to the census of 2011 is about 8.5%.

→ ~~In~~ Among the various tribal groups, ~~are~~ there are some tribal groups which are less developed and less privileged and they are termed as the vulnerable tribal groups.

→ In 1973, Shelkar Commission first of

classified some of the tribes under the ~~of~~ particular tribal group which later changed to Particularly Vulnerable Tribal group in 2003.

→ At present, there are 75 Particularly Vulnerable Tribal group in India out of which most of such groups are found in the state of Odisha.

→ Features of PVTGs are → they are having small population, absence of written language, live in isolated areas etc.

2) (G) → Supply Chain Management

→ The concept of Supply Chain Management is a very broad term.

→ The concept involves the designing, procuring of raw materials, managing inventory, ~~prods~~ final product, transportation, marketing, customer service.

→ Hence, it is not merely concerned with the making of the product but also with its marketing, quality control etc.

→ The concept of supply focuses on increasing the productivity, increasing the efficiency of ~~log~~ logistics by better transportation facilities and reduction in the inventory.

3 (D)

Ocean Salinity

Ocean salinity is the amount of salt present in the water of oceans. It is usually expressed in parts per thousand or ppt.

On an average, the salinity of the seawater is about 35 ppt. However, it varies generally in the range of 33-37 ppt.

Vertical Distribution of Salinity:-

- It has been observed that the salinity in the oceans increases with the depth.
- At the surface waters of oceans, there is some loss in salinity due to precipitation, inflow of river water, oceanic currents.
- However, in the deep seas, there occurs no addition of the freshwater and hence, the salinity is more. Salinity in the oceans vertically decreases after an imaginary line i.e., the halocline.

Horizontal distribution of salinity :-

- In general, the salinity decreases from the ~~poles~~ equator towards the poles.
- However, the highest salinity is not recorded in the equatorial region, inspite of high temperatures. It is because of the fact that this region receives high amount of annual rainfall.
- The highest salinity is found in the land-locked tropical seas, which are situated in the western margins of continents.
- The Red Sea has a salinity of 40% whereas the Lake Van of Turkey has the salinity of 330% , Dead Sea has a salinity of 238% .

Factors affecting the salinity are as follows:-

- Movement of oceanic currents.
- Addition of fresh water from rivers.
- Rate of evaporation
- Rate of precipitation
- Temperature of seawater

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3(B) India is primarily an agricultural country, with more than half of the working population employed in the agriculture and its allied activities.

However, a rapid ~~is~~ growth of industries is also necessary for the ~~the~~ economic development of the country.

From the Industrial Policy Resolution of 1948 to the New Industrial Policy of 1991, the country has witnessed different stages of the development of industries. But in spite of that, the rate of industrialisation is still slow which can be witnessed with the contribution of secondary sector in the GDP of the country. It is only about 20%.

The Industrial Policy Resolution of 1991 focussed on the dereservation of industries for the private sector and this resulted in the 'LPG reforms' i.e. Liberalisation, Privatisation and Globalisation. It also resulted in the end of the 'licensing Raj'. However, this industrial policy also failed to achieve its objectives completely.

The main factors for the slow pace of the industrialisation in India are:-

- Uneven economic development in the country. The western part of the country is more industrially developed than its eastern part.
- Lack of basic infrastructure.
- ~~lack~~ Lack of good network of transportation.
- High labour costs.
- Lack of research and innovation environment in the country.
- Lack of skilled labour.
- Lack of entrepreneurship.

Steps to boost industrial production are as follows:-

- To develop India as a global manufacturing hub. Presently, the govt. of India is working ~~in~~ on the theme of Make In India for the World.
- Boost entrepreneurship through Stand-Up India and Start-Up India.
- Improving transportation through inland water, ~~to~~ dedicated freight corridor of railways and expressways.
- Decreasing the ~~rate~~ ^{rate} of corporate taxes ~~to~~ attract the investors.

3(c) Non-Conventional Sources of Energy are fast gaining popularity in India. Some of the popular forms of Non-Conventional Energy in our country are as follows:-

a) Solar Energy :- A number of mega solar parks are under construction in our country. In the state of Madhya Pradesh, a mega solar power plant has been established in Ind region of Rewa. Similarly, a proposal is under consideration to make a floating solar power plant in Omkareshwar on the river Narmada.

b) Wind Energy :- This is also one of the most popular form of the non-conventional energy. A number of wind mills have been established in the states of South India.

c) Geothermal Energy :- It is the energy obtained in the form of heat of earth's interior. In India, a geothermal power plant is functioning at Manikaran in Himachal Pradesh.

d) Biomass Energy :- Energy is obtained by the decomposition

of the left-out animal and agricultural residue in the form of methane gas.

Present status of non-conventional energy sources in India: -

- In COP-21, 2015 at Paris, India announced to generate 175 GW of energy from the non-conventional sources.

- Accordingly, at present, 65 GW of solar energy is being produced in the country. ~~from the~~ in the production of solar energy, Karnataka ~~to~~ occupies the top position.

- The Govt. of India in 2015 has set a target of 60 GW of wind power of which, at present, 37.5 GW is generated. India ranks fourth in the wind power globally.

→ Importance of non-conventional energy: -

→ Abundant in nature

→ Less polluting

→ Reduces the dependence on coal, crude oil for energy

→ Makes a country self-reliant in energy production.